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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,880	11/21/2001	Stephen Ernest Jacobson	CH2804 US NA	1503

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EXAMINER
WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
1742	3

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/989,880	JACOBSON ET AL.	
	Examiner	Art Unit	
	Harry D Wilkins, III	1742	

-- The MAILING DATE of this communication appears on the cover sheet with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☒ Claim(s) *6,9,16 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 4, line 31, "trichlorophosphosphazosulfonyl" should be "trichlorophosphazosulfonyl" (removing the second instance of "phos") as indicated on page 9, line 6.

Appropriate correction is required.

Claim Objections

2. Claims 6, 8, 16 and 23 are objected to because of the following informalities: since claim 6, duplicates claim 5, and claims 7 and 8 depend on claims 3 and 4, respectively, it appears that Applicant intended claim 6 to depend from claim 2. Further examination will be based upon this assumption. Claims 9, 16 and 23 recite both "trichlorophosphazosulfonyl" and "trichlorophosphosphazosulfonyl". However, as noted above, the second of these is a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 102

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-13, 23 and 24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Angell et al (US 5,855,809).

Angell et al anticipate the invention as claimed. Angell et al teach (see col. 6,

line 19 through col. 7, line 30) the deposition of an alkali metal (Li or Na) by electrolysis of a solution of $MAlCl_4$, where M is an alkali metal (i.e.-MCl+$AlCl_3$) mixed with a solution of equal parts of $AlCl_3$ and Cl_3PNSO_2Cl (trichlorophosphazosulfonyl chloride) (produced in example 2).

Regarding claims 2 and 3, in example 4, Angell et al teach electrolyzing at 100°C, which is above the melting point of Na. Thus, the process was carried out under a condition that produced a molten layer of Na, but below a temperature of 200°C.

Regarding claim 4, Angell et al teach (see col. 4, lines 63-65) using aluminum chloride, boron chloride, antimony chloride or iron chloride.

Regarding claims 5-8, Angell et al teach (see col. 4) using several halogen-donating compounds that includes RSO_2X, where $R=CH_3$ (bottom left), as well as $RP(O)X_2$, where R= $-N=PX_3$ (upper left) and RSO_2X, where R= $-N=PX_3$ (upper right).

Regarding claim 9, Angell et al teach (see col. 4) each of these compounds.

Regarding claims 10-12, Angell et al teach (see col. 4) using $AlCl_3$ and each of these compounds.

Regarding claim 13, example 4 of Angell et al is carried out such that it is at a temperature of 100°C, which produces molten Na.

Regarding claim 23, example 4 of Angell et al includes electrolysis of NaCl with $AlCl_3$ and trichlorophosphazosulfonyl chloride at a temperature of 100°C.

Regarding claim 24, Angell et al teach in example 4 that Na is produced at the cathode (in the molten state at 100°C), and the basic electrolytic reaction would inherently produce Cl gas at the anode.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 14-22 and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angell et al (US 5,855,809).

Regarding claims 14 and 25, Angell et al do not teach raising the temperature of the electrolysis reaction to higher that the temperature at which the alkali metal is molten. However, it would have been within the expected skill of a routineer in the art to have maintained the temperature of the electrolysis reaction in order to maintain the alkali metal is the molten state for easier continuous processing.

Regarding claim 15, all of the examples contained in Angell et al utilize Cl as the halogen.

Regarding claims 16-19, Angell et al teach (see col. 4) each of these compounds.

Regarding claims 20-22, Angell et al teach in example 4, using NaCl.

Regarding claim 26, Angell et al do not teach removing the molten layer of the sodium. However, it would have been obvious to one of ordinary skill in the art to have operated the batch electrolytic process of Angell et al as a continuous process by constantly adding more electrolyte and constantly removing the products (i.e.-molten Na

and Cl_2 gas). It is within the level of ordinary skill to operate a process continuously. *In re Dilnot* 138 USPQ 248; *In re Korpi* 73 USPQ 229; *In re Lincoln* 53 USPQ 51.

Regarding claim 27, Angell et al do not teach separating the molten metal to form a separated electrolyte. However, it would have been within the expected skill of a routineer in the art to have separated out any impurities in the molten sodium in order to create a more pure product. This separation would inherently produce a recovered electrolyte as the electrolyte would be the only substance mixed with the molten metal.

Regarding claim 28, Angell et al do not teach recycling the recovered electrolyte. However, it would have been within the expected skill of a routineer in the art to have recycled the recovered electrolyte in order to reduce costs by utilizing less input electrolyte and reducing waste disposal costs.

Regarding claims 29-31, Angell et al teach (see example 4 and col. 4) using NaCl, $AlCl_3$ and each of the three compounds.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 703-305-9927. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Harry D Wilkins, III
Examiner
Art Unit 1742

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

hdw
July 15, 2003